



INSTALLATION INSTRUCTIONS
for the
***Kodak X-Omatic* IDENTIFICATION CAMERA**
MODELS 4, 4L, and 4SL

PLEASE NOTE The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

Table of Contents

Description	Page
Electrostatic Discharge	3
Description and Specifications	4
Description	4
Specifications	4
Space Requirements	4
Environmental Requirements	4
Cassettes	5
Power Requirements	5
Unpacking the ID CAMERA	6
Setting Up the ID CAMERA	9
Selecting the Correct Voltage	9
Selecting the Date Format	11
Selecting the Time Format	14
Setting the Date and Time	17
Clearing the Date and Time	19
Performing the Density Step Test Procedure	20
Publication History	21

Section 1: Electrostatic Discharge

Overview

Electrostatic discharge (ESD) is a primary source of

- product downtime
- lost productivity
- costly repairs

While you cannot feel a static charge of less than 3,500 volts, as few as 30 volts can damage or destroy essential components in electronic equipment.

Preventive Measures

- Always look for an ESD warning label before doing any procedure involving static-sensitive components such as CIRCUIT BOARDS. All static-sensitive components are marked with bright graphic labels, which frequently include instructions. Follow all label instructions.
- Wear a grounding strap when handling static-sensitive components. Always make certain that the clip remains attached to a properly grounded, unpainted, clean surface.
- Repair static-sensitive components at an ESD-protected work station or use a portable grounding mat. For help in setting up an ESD-protected work station, contact your Kodak representative
- When you move static-sensitive components from one area to another, insert and transport the components in ESD-protective packaging.

Section 2: Description and Specifications

Description

The *Kodak X-Omatic* IDENTIFICATION CAMERA, MODELS 4, 4L, and 4SL (hereafter referred to as the ID CAMERA), records patient identification data onto x-ray film in lighttight cassettes.

The camera provides:

- Dual lenses for use with C-1 and C-1N windows for MODELS 4 and 4L
- Excellent image quality with high-quality lenses
- Operation in **normal** room illumination
- The exact time and date of the exposure recorded on the film with a variety of customized date and time formats available
- The serial number of the camera is recorded on the film for all models and lens positions except the C-1N lens position in the MODEL 4L.
- Choice of both anterior-posterior and posterior-anterior imaging
- MODEL 4 records patient data on the upper corner of the film
- MODELS 4L and 4SL record patient data on the lower corner of the film

When you insert a CASSETTE correctly into the SLOT above the BASE, and a patient ID CARD is in either the P-A or A-P SLOT, the camera automatically:

- [1] Actuates a mechanical ARM to open a WINDOW in the CASSETTE.
- [2] Illuminates the LAMP to record the identification data, time, and date on the film.
- [3] Closes the WINDOW in the CASSETTE.

This entire operation takes approximately 2 seconds.

Specifications

Space Requirements

- The physical characteristics of the camera are:

Height:	32.5 cm (12.80 in.)
Width:	32.4 cm (12.76 in.)
Depth:	43.5 cm (17.13 in.)
Weight:	12 kg (26.5 lb)

- Install the camera on a flat surface, with a minimum overhead clearance of approximately 75 cm (30 in.).
- To be able to insert the largest CASSETTES, provide these clearances:
 - 1 m (3 ft) between the **front** edge of the camera and the nearest wall
 - 1 m (3 ft) between the **right** edge of the camera and the nearest wall

Environmental Requirements

The camera operates in the ambient room conditions normally encountered in an x-ray department:

- 15 to 30°C (59 to 86°F)
- 15 to 76% relative humidity

Cassettes

The ID CAMERA will operate with the following CASSETTES:

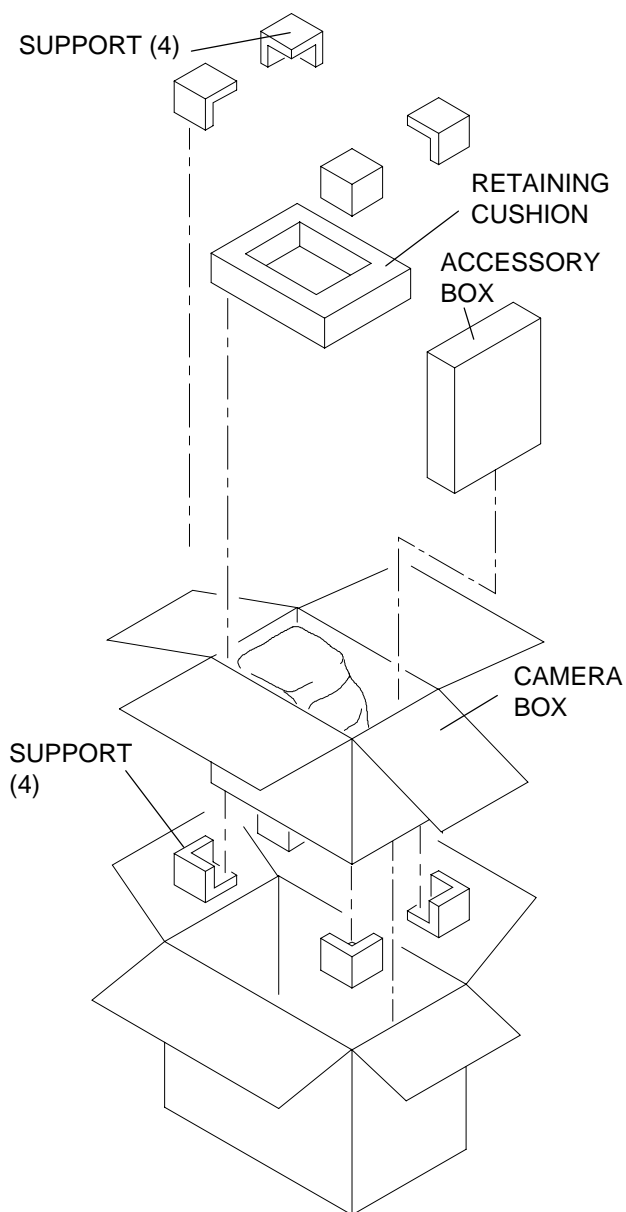
- All sizes of *Kodak X-Omatic* CASSETTES with C-1 windows
- All sizes of *Kodaflex* CASSETTES with C-1 windows
- All sizes of *Kodak Min-R 2* CASSETTES with C-1N windows

Power Requirements

- [1] **For the MODELS 4, 4L, and 4SL ID CAMERAS:** These cameras will operate correctly at the following voltages and tolerances. The cameras are internally switchable to obtain each of the following voltage ranges.
- [2] Do **not** connect the camera to a power source that serves other equipment.
- [3] Small variations in the voltage can cause variations in the density of the film. If necessary, install a voltage regulator for a constant AC voltage to the camera.
- [4] Use a reliable earth ground.
- [5] Use the correct FUSE for your current.

Model	Frequency (Hz)	Maximum Current (A)	V AC 10%	Fuse
4, 4L, and 4SL	50 or 60	3	100	UL/CSA 3 A
	50 or 60	3	120	UL/CSA 3 A
	50 or 60	1.5	220	TUV 1 A
	50 or 60	1.5	230	TUV 1 A
	50 or 60	1.5	240	TUV 1 A

Section 3: Unpacking the ID CAMERA



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Caution

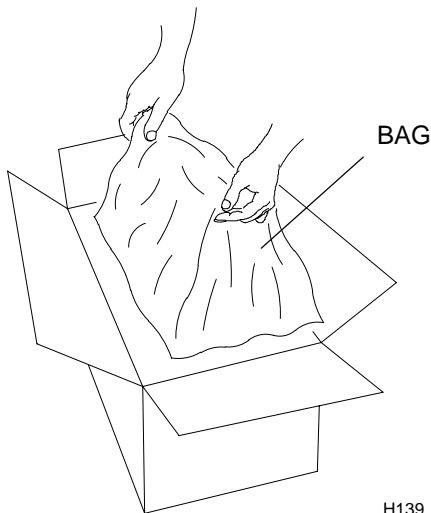
Do not turn the shipping carton upside down.



Important

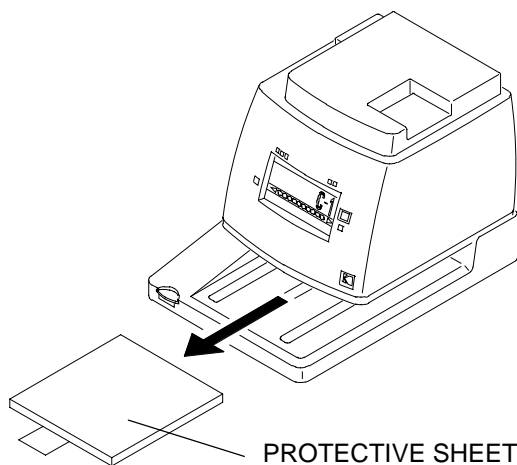
Be careful opening the shipping carton and removing the packing material. Keep the carton and all packing material for the customer, in case the ID CAMERA must be returned for service.

- [1] Remove the sealing tape from the shipping carton.
- [2] Remove the 4 SUPPORTS from the top corners of the CAMERA BOX.
- [3] Open the CAMERA BOX.
- [4] Remove the RETAINING CUSHION and the ACCESSORY BOX.



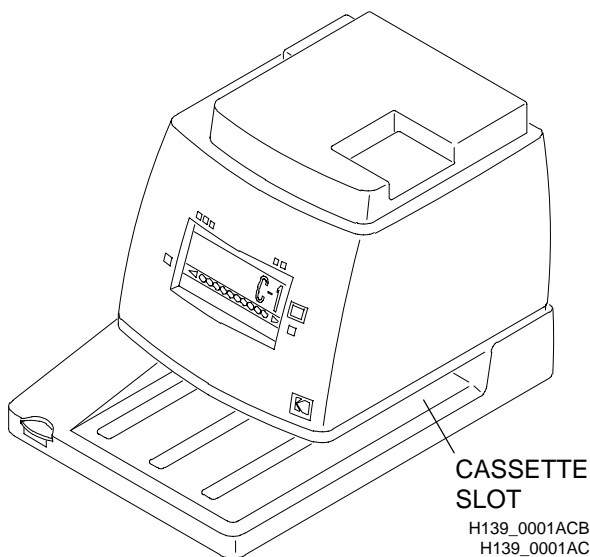
H139_0014ACA
H139_0014AC

- [5] Take the aluminum shielding BAG containing the ID CAMERA out of the CAMERA BOX.
- (a) Cut the BAG carefully and remove the ID CAMERA.
 - (b) Remove the dessicant container from the back of the ID CAMERA.



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- [6] Remove the PROTECTIVE SHEET from the ID CAMERA.



Caution

When moving the ID CAMERA, do not put your hands into the CASSETTE SLOT. Hold the ID CAMERA from underneath. If excessive force is applied to the CASSETTE SLOT, it might break.

Check the Contents of the ACCESSORY BOX

INSTALLATION INSTRUCTIONS

Check that the ACCESSORY BOX contains the following:

- 2 spare MAIN EXPOSURE LAMPS 10 W, 4.6 V
- 1 spare UL CSA FUSE 3 A
- 1 spare TUV FUSE 1 A
- 2 spare CLOCK LAMPS
- 2 POWER CORDS: one for 100 or 120 V AC operation and one for 220, 230, or 240 V AC operation
- Warranty card
- "Cassette Window Description" and "Error Code Label" Part No. 1C0069
- "Character Label" for Serial No. identification when replacing the A-P or P-A CIRCUIT BOARDS
- Publication No. 2B6405, containing the Operator Manual, Installation Instructions, and the Service Guide



Important

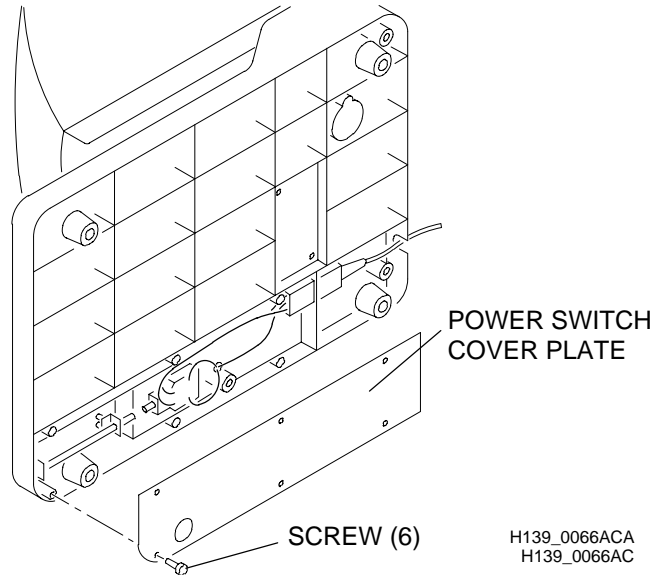
Remember to keep the shipping carton and all packing material for the customer, in case it is necessary to return the ID CAMERA for service.

Section 4: Setting Up the ID CAMERA

Selecting the Correct Voltage

**Warning**

Dangerous Voltage.

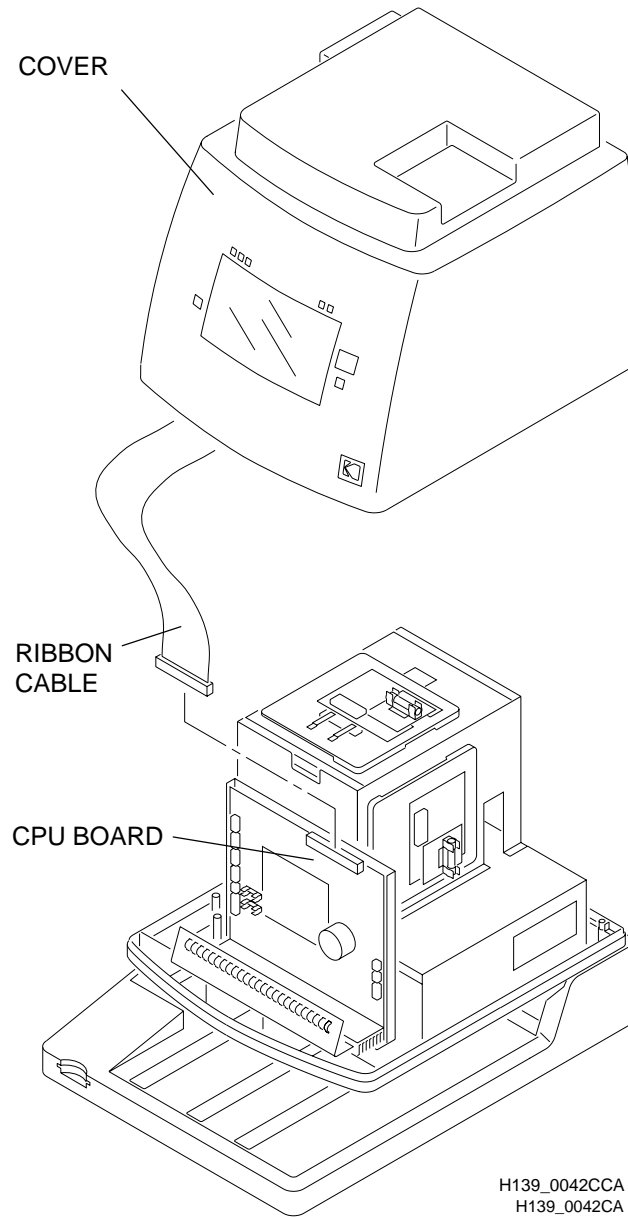
Removing the POWER SWITCH COVER PLATE

- [1] Check that the ID CAMERA is de-energized and that the POWER CORD is disconnected.
- [2] Turn the ID CAMERA on its side.
- [3] Remove the 6 SCREWS from the POWER SWITCH COVER PLATE, and remove the POWER SWITCH COVER PLATE.
- [4] Use a 3.0 mm ALLEN WRENCH to remove the 3 SCREWS from the bottom of the ID CAMERA.
- [5] Turn the ID CAMERA upright.

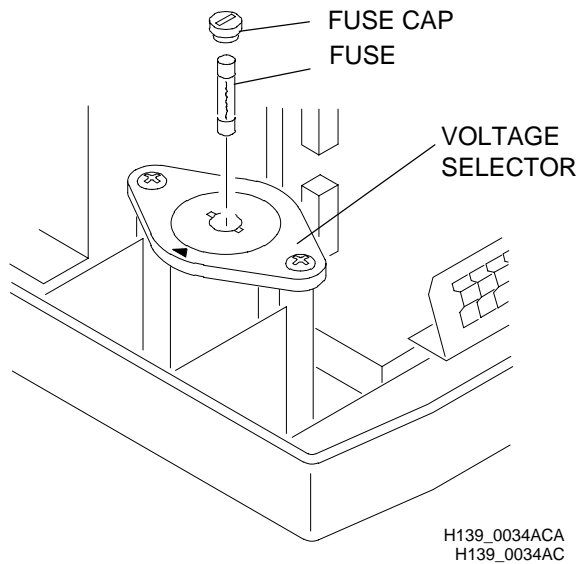
**Caution**

Do not stretch the RIBBON CABLE attached to the COVER and CPU BOARD.

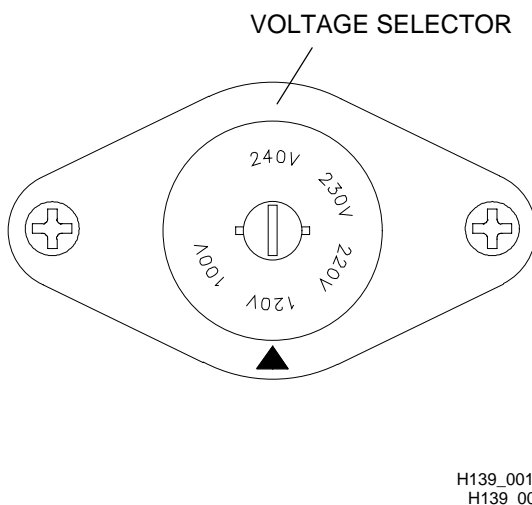
Removing the COVER



- [6]** Remove the COVER carefully, and disconnect the RIBBON CABLE from the CPU BOARD. Turn the COVER upside down and place the COVER next to the ID CAMERA.

Installing a new FUSE

- [7] Use a FLATHEAD SCREWDRIVER to remove the FUSE CAP holding the FUSE.
- [8] Measure the source voltage.

Selecting the Correct Voltage

- [9] Use a flat WIDEBLADE SCREWDRIVER, or COIN, to turn the VOLTAGE SELECTOR to the correct voltage.
- [10] Insert the correct FUSE, install the new FUSE CAP, and press and turn clockwise.

Note

If you are installing and setting up the ID CAMERA for the first time, you can keep the COVER off and begin at Step 7 on Page 14 for the procedure for setting the Date Format and with Step 7 on Page 17 for the procedure for setting the Time Format.

- [11] Connect the RIBBON CABLE to the CPU BOARD, and place the COVER on the ID CAMERA.
- [12] Turn the ID CAMERA on its side.
- [13] Install the 3 SCREWS, and the 6 SCREWS and POWER SWITCH COVER PLATE removed earlier.
- [14] Turn the ID CAMERA upright.

Selecting the Date Format

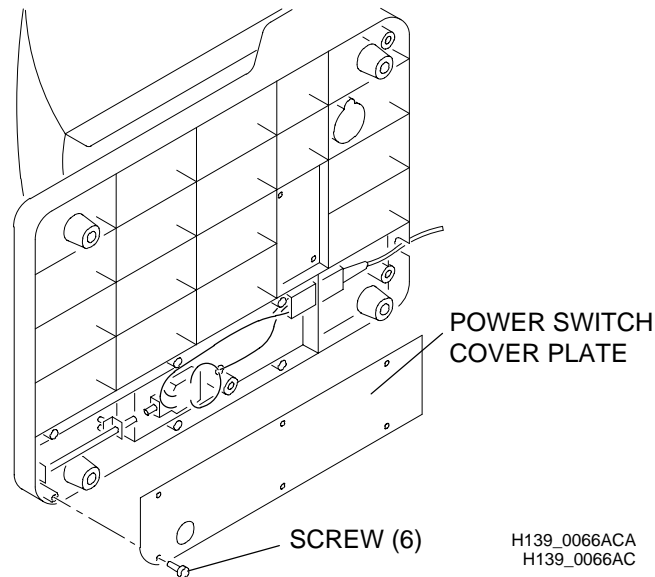
SWITCHES 1 and 2 of DP SW1 control the date format.



Warning

Dangerous Voltage.

Removing the POWER SWITCH COVER PLATE



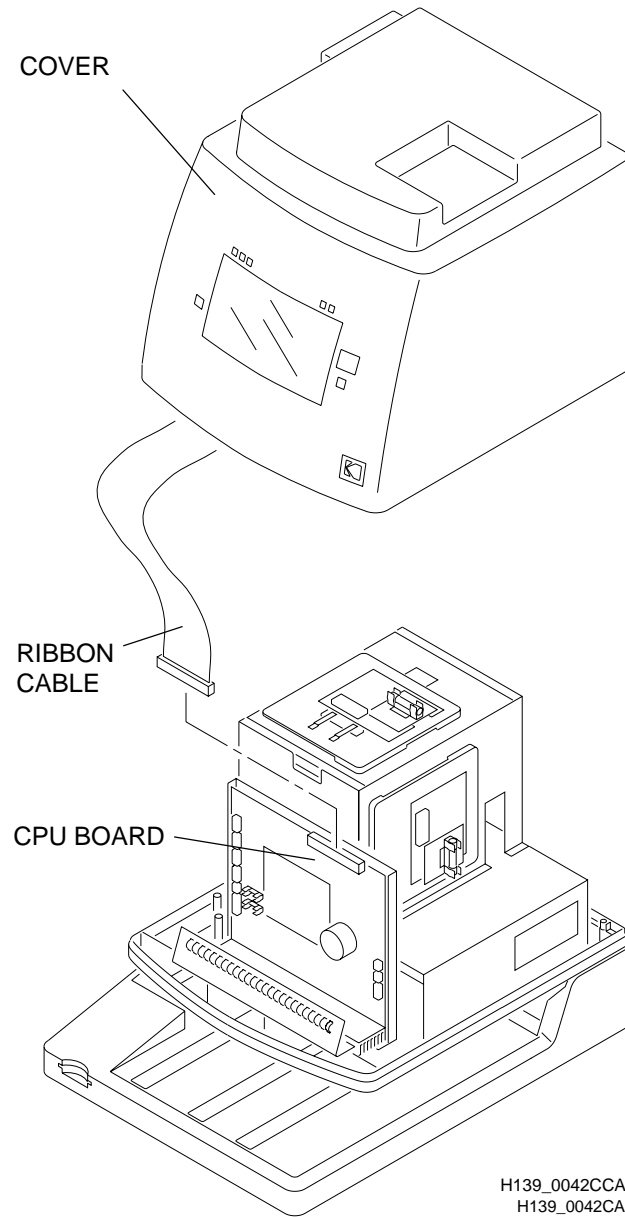
- [1] Check that the ID CAMERA is de-energized and that the POWER CORD is disconnected.
- [2] Turn the ID CAMERA on its side.
- [3] Remove the 6 SCREWS from the POWER SWITCH COVER PLATE, and remove the POWER SWITCH COVER PLATE.
- [4] Use a 3.0 mm ALLEN WRENCH to remove the 3 SCREWS from the bottom of the ID CAMERA.
- [5] Turn the ID CAMERA upright.



Caution

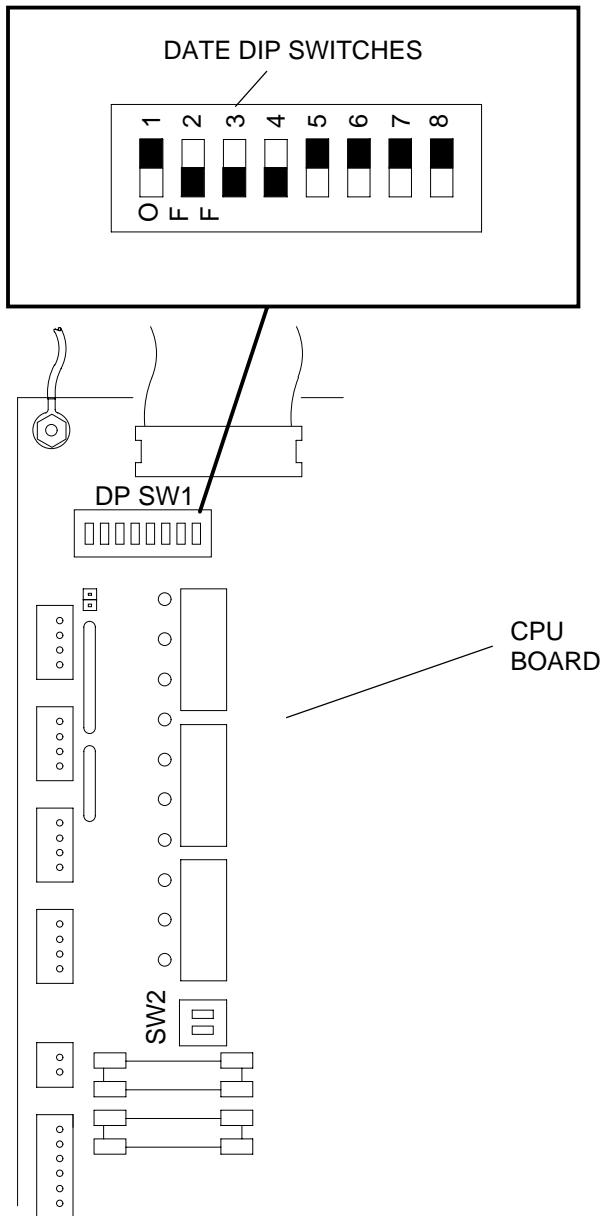
Do not stretch the RIBBON CABLE attached to the COVER and CPU BOARD.

Removing the COVER



- [6] Remove the COVER carefully, and disconnect the RIBBON CABLE from the CPU BOARD. Turn the COVER upside down and place the COVER next to the ID CAMERA.

Locating the DATE DIP SWITCHES



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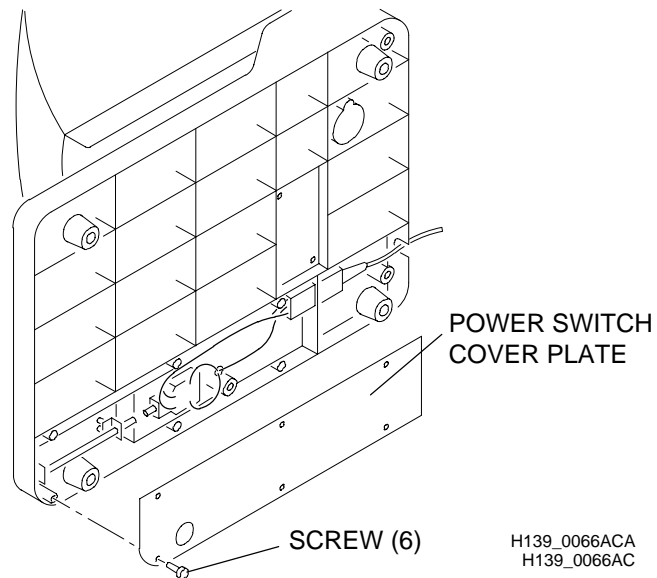
- [7] To select the month-day-year format, to set 02-28-93, for example:
 - (a) DIP SWITCH 1 to ON and
 - (b) DIP SWITCH 2 to OFF
- [8] To select the day-month-year format, to set 28-02-93, for example:
 - (a) DIP SWITCH 1 to OFF and
 - (b) DIP SWITCH 2 to ON
- [9] To select the year-month-day format, to set 93-02-28, for example:
 - (a) DIP SWITCH 1 to ON and
 - (b) DIP SWITCH 2 to ON
- [10] Connect the RIBBON CABLE to the CPU BOARD, and place the COVER on the ID CAMERA.
- [11] Turn the ID CAMERA on its side.
- [12] Install the 3 SCREWS, and the 6 SCREWS and POWER SWITCH COVER PLATE removed earlier.
- [13] Turn the ID CAMERA upright.
- [14] Energize the ID CAMERA while holding the DENSITY DECREASE BUTTON. This will reset the microprocessor.

Selecting the Time Format

SWITCHES 1 and 2 of SW2 control the time format.



Warning
Dangerous Voltage.

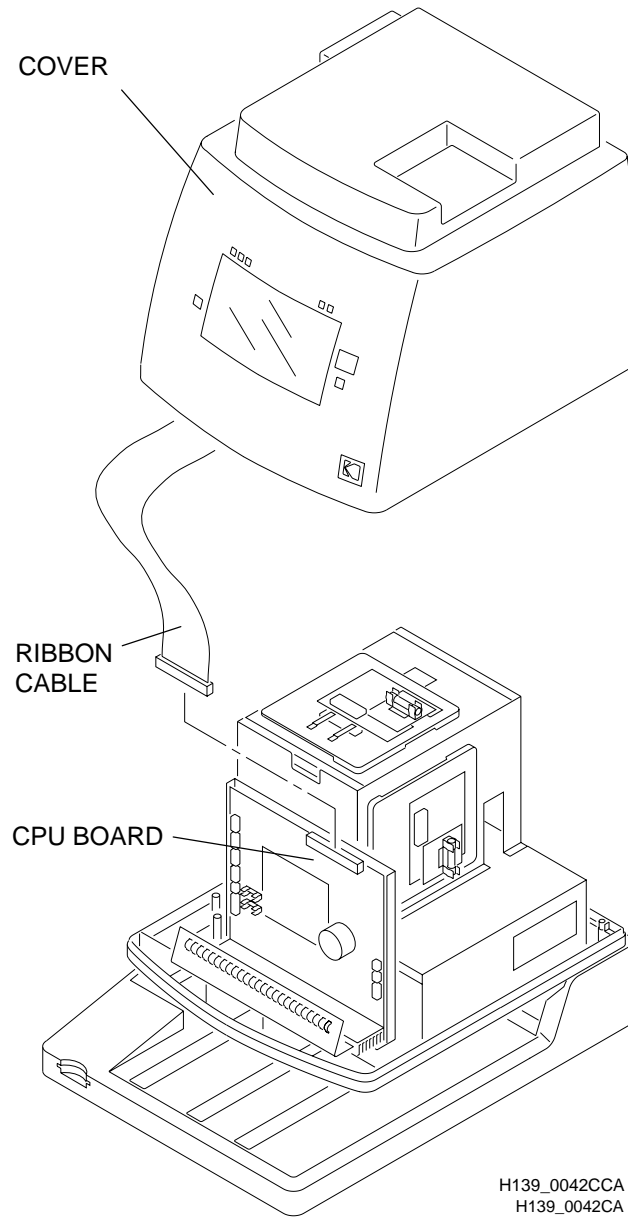
Removing the POWER SWITCH COVER PLATE

- [1] Check that the ID CAMERA is de-energized and that the POWER CORD is disconnected.
- [2] Turn the ID CAMERA on its side.
- [3] Remove the 6 SCREWS from the POWER SWITCH COVER PLATE, and remove the POWER SWITCH COVER PLATE.
- [4] Use a 3.0 mm ALLEN WRENCH to remove the 3 SCREWS from the bottom of the ID CAMERA.
- [5] Turn the ID CAMERA upright.

**Caution**

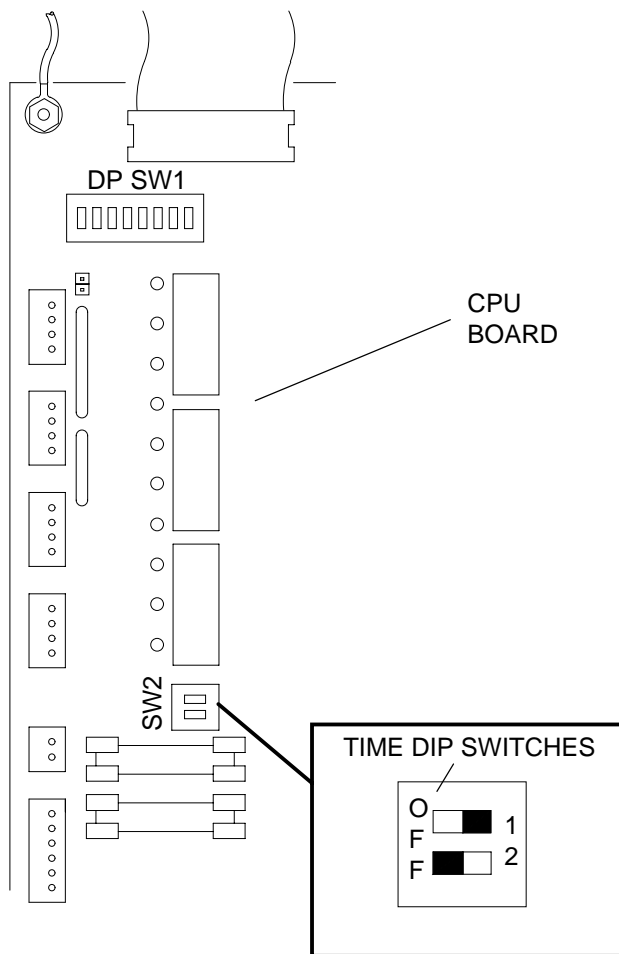
Do not stretch the RIBBON CABLE attached to the COVER and CPU BOARD.

Removing the COVER



- [6] Remove the COVER carefully, and disconnect the RIBBON CABLE from the CPU BOARD. Turn the COVER upside down and place the COVER next to the ID CAMERA.

Locating the Time Date DIP SWITCHES

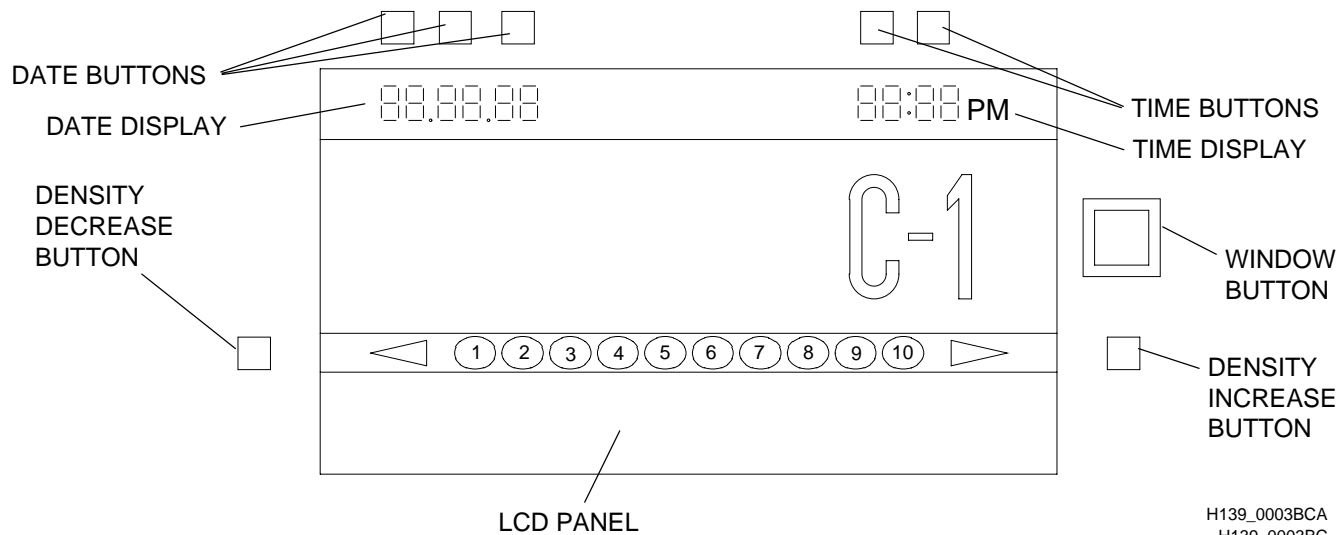


- [7] To select the 12-hour time format, set:
 - (a) DIP SWITCH 1 to OFF and
 - (b) DIP SWITCH 2 to OFF
- [8] To select the 24-hour time format, set:
 - (a) DIP SWITCH 1 to ON and
 - (b) DIP SWITCH 2 to OFF
- [9] Connect the RIBBON CABLE to the CPU BOARD, and place the COVER on the ID CAMERA.
- [10] Turn the ID CAMERA on its side.
- [11] Install the 3 SCREWS, and the 6 SCREWS and POWER SWITCH COVER PLATE removed earlier.
- [12] Turn the ID CAMERA upright.
- [13] Energize the ID CAMERA while holding the DENSITY DECREASE BUTTON. This will reset the microprocessor.

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Setting the Date and Time

- [1] Check that the ID CAMERA is connected to a power source with a reliable earth ground. Energize the ID CAMERA.



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H139_0003BC

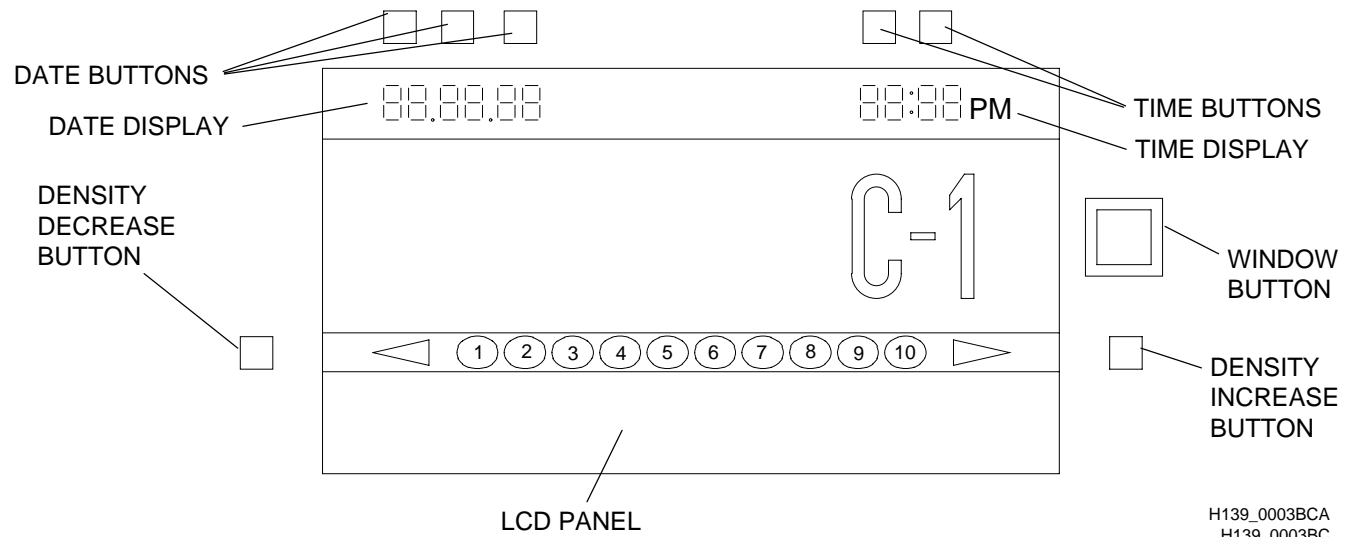
[2] Set the date and time:

- (a) Press the DENSITY INCREASE and DENSITY DECREASE BUTTONS at the same time. The values in the DATE and TIME DISPLAYS will flash.
- (b) Press the DATE BUTTONS to select the date you want. The DATE BUTTONS are programmed to the date format selected earlier.
 - For example, if your date format is month/day/year, the left DATE BUTTON controls the month, the middle DATE BUTTON controls the day, and the right DATE BUTTON controls the year.
 - If your date format is day/month/year, the left DATE BUTTON controls the day, the middle DATE BUTTON controls the month, and the right DATE BUTTON controls the year.
 - If your date format is year/month/day, the left DATE BUTTON controls the year, the middle DATE BUTTON controls the month and the right DATE BUTTON controls the day.
- (c) Continue to press the appropriate DATE BUTTONS until the correct date is displayed on the LCD.
- (d) Press the TIME BUTTONS to select the time. The TIME BUTTONS are programmed to the time format selected earlier, either a 12- or 24-hour clock.
 - In both the 12- and 24-hour time formats, the left TIME BUTTON controls the hour, and the right TIME BUTTON controls the minutes.
- (e) Continue to press the TIME BUTTONS until the correct time is displayed on the LCD PANEL.
- (f) PRESS the DENSITY INCREASE BUTTON only, approximately 2 - 3 seconds, until the DATE and TIME DISPLAYS stop flashing.

Note

- The DENSITY BUTTONS are deactuated while the DATE and TIME DISPLAYS are flashing.
- The time or date cannot be changed if a PATIENT ID CARD is in either the P-A or A-P CARD SLOT.

Clearing the Date and Time



To clear the date and time, or set the date and time to "0", de-energize the CAMERA, press the DENSITY DECREASE BUTTON and then press the POWER BUTTON. This clears, or resets, the microprocessor.

Section 5: Performing the Density Step Test Procedure

Density Step Test Procedure

The purpose of the Density Step Test Procedure is to choose the preferred density exposure for the customer. It is important that the customer be involved in this procedure.

This is a good opportunity for you to instruct the customer in the operation of the ID CAMERA. As you perform the Step Test, allow the customer to help prepare CASSETTES and ID CARDS, and to make a few of the test exposures. Afterward, give the Operator Manual to the customer and answer any questions.

- [1] Prepare 10 ID CARDS by numbering each from 1 to 10. Prepare 10 CASSETTES by loading with unexposed film. Use the smallest CASSETTE available.
- [2] Expose each CASSETTE to an increasing density, making sure to change the ID CARD for each exposure. Use the ID CARD marked "1" for DENSITY SETTING 1, and use the ID CARD marked "2" for DENSITY SETTING 2, and so on. Make the exposures with the CASSETTES used most often.
- [3] Process the film. Choose the best exposure. Check the density with a densitometer if one is available. The background density from a bright white card should be 1.2. Record the preferred exposure for the customer.



Note

If you cannot get satisfactory results, see the Service Manual section "Adjusting Potentiometers" for instructions on adjusting the LAMP POTENTIOMETERS.

Section 6: Publication History

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
August 1993	990602		All Pages	3294ii_a.doc	First printing.
January 1996	990602	2504-435	All Pages	ii3294_1_435.doc	Added 4SL information.

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